Case Study

The University of Leeds

Client:

The University of Leeds in West Yorkshire is one of the largest universities in the UK and is home to over 34,000 students, over 7,000 members of staff, and a global network of more than 240,000 alumni.

UNIVERSITY OF LEEDS

Industry:

Education

Product:

3D Building Models

"The 3D campus model has become a transformative tool for the University of Leeds. It allows us to understand our estate in a far more integrated, dynamic way and has strengthened how we plan for the future. From masterplanning and scenario testing to stakeholder engagement, it has given us a shared visual language that makes complex decisions clearer, more transparent and more accessible to our community."

Danai Vrouvliani, CAD/BIM Manager, (Asset Management Team) at University of Leeds.

Summary:

Danai Vrouvliani on behalf of the University of Leeds commissioned a bespoke 3D campus model to support its estate management and long-term planning through its Campus Reimagined initiative. The model was developed for multi-function use in a range of platforms including ArcGIS to reflect the full extent of the university's built environment. It has been heavily used in stakeholder engagement and in the University's future master planning process by creating future scenarios of campus development that will enhance the distinct character of the campus.

Challenge:

The Campus Reimagined initiative aims to guide the planning, development, and management of the campus over the next 15+ years, with a strong emphasis on sustainability, inclusivity, and engagement. The University identified the need for a highly functional 3D model of its entire estate to serve as a dynamic planning tool, fully compatible with ArcGIS, to support spatial analysis, estate management, and long-term strategic decision-making. Beyond technical capabilities, the model also needed to effectively convey the current state of the campus and illustrate future development scenarios in a way that could be easily understood and presented to staff, students, and other stakeholders. Critically, the model would function as an asset within the University's Masterplan Framework, helping to inform planning strategies and scenario testing to ensure the campus continues to meet the evolving needs of its community for decades to come.

Solution:

Bluesky developed a bespoke Level of Detail 3 (LOD3) 3D campus model encompassing all buildings and facilities across the University of Leeds' estate. To meet the University's functional requirements, the model also integrated Ordnance Survey building footprint data with the University's building register, enabling the differentiation of adjoining structures by faculty ownership, an essential feature for estate management.

The model included detailed attributes for each building, such as construction materials, year of build, functional use, and condition rating. This level of detail enables the University to visualise and manage its estate with greater precision, including the ability to distinguish between physically connected buildings that serve different faculties.

Urban design and architecture agency Prior + Partners, leading the Campus Reimagined initiative alongside Will Reed on behalf of the University, further enhanced the model by incorporating geolocated spatial data, points of interest, main entrances, preferred pedestrian routes, human movement patterns, and existing site constraints. This dataset was used to create a static representation of the status-quo, which formed the foundation for architectural massing studies and served as the visual and analytical base for all planning graphics.

Results:

The model has become a central tool in shaping the University's future master planning efforts. It has been used extensively to explore and visualise development scenarios that aim to enhance the distinct character of the campus, in alignment with the principles of the Campus Reimagined initiative. These scenarios have been informed by comprehensive consultations with students and staff, ensuring that future plans reflect the needs of the wider University community.

The model continues to play a vital role in stakeholder engagement and decision-making, supporting discussions around future campus development. While specific proposals are not yet publicly available, the model has underpinned architectural design work and planning studies for a range of developments.

3D Building Model Specification	
Detail	LOD1 to LOD3
Accuracy XY	± 30cm rmse
Coverage	On demand
Model type	Solid, Mesh, Face, Spline
Formats	Include: DWG, DXF, 3DS, MAX
Standard Projection	British National Grid

Get in touch today at **info@bluesky-world.com**